

CHILDREN'S BURDEN OF DISEASE CAUSED BY LEAD EXPOSURE IN CHINA

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Background and Aims: To explore Chinese children's disease burden of mild mental retardation (MMR) caused by lead exposure

Methods: Articles on children blood lead levels (BLLs) published from 1994 to 2008 were collected through Chinese Biomedical Disk, Chinese Journal Full-test Database and other ways according to formulated criteria. The children's incidence rate of MMR (IMMR) and disease burden (DALYs) due to lead exposure were estimated using the methods recommended by WHO.

Results: The study showed that the mean BLLs of urban and rural children were 7.26µg/dl, 7.88µg/dl, and the IMMR were 18.1‰, 19.5‰, both of that were higher than the average level of Western Pacific Region with 7.7‰. The DALYs of children in city due to lead exposure were 39.4 (DALYs per 1000 children), while the DALYs in rural area were 43.2. Before the leaded gasoline banned in China, the urban children's mean BLLs were 9.33µg/dl, IMMR was 21.8‰ and the loss of DALYs were 47.8; while those dropped to 7.04µg/dl, 17.5‰ and 38.2, respectively after the ban. For rural children, the mean BLLs were 8.22µg/dl, IMMR was 20.2‰ and DALYs were 44.0 before the ban, while those dropped to 7.70µg/dl, 19.6‰ and 42.7, respectively after.

Conclusions: We can conclude that ban of leaded gasoline reduced the BLLs of children, and then reduced the disease burden caused by lead-induced MMR, yet that in rural areas decreased relatively by less; the incidence rate of MMR was still in the high level. It was urgent and necessary that we should prevent and control the children's lead exposure to reduce the economical loss and social effect.